

Patent Application of  
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for

## **TITLE: SELF SEALING FORMS**

### **CROSS REFERENCE TO RELATED APPLICATIONS**

This is a divisional of Ser. No. 09/130,534 filed August 04, 1998, which is a continuation-in-part of Ser. No. 09/093,301 filed June 08, 1998, now abandoned, which is a continuation-in-part of Ser. No. 08/986,394, filed Dec. 08, 1997, now abandoned.

### **BACKGROUND-FIELD OF THE INVENTION**

This invention relates to forms, particularly to such forms that can be self sealed, obviating thereby the need of an envelope. The term form encompasses letters, documents, forms, and any type of correspondence. A form can also be described as a mailer or any other equivalent term.

### **BACKGROUND-DESCRIPTION OF PRIOR ART**

Whether it is one individual piece or a massive list of pieces, personalization is a ruling constant in any mailing project in today's private and public sectors. Hence, functionality, economy and versatility are very desirable qualities associated with these projects.

Many attempts have been made to achieve these qualities, and most of these efforts have been restricted to continuous feeding systems (e.g. web presses and friction printers) as opposed to non-continuous or sheet fed printers (e.g. laser, inkjet, thermal and litho printers.)

The following are notable exponents of the known art:

U.S. Patent 4,586,651 to Bradley, assigned to Bedford Engineering Co. of Armonk, NY; U.S. Patent 5,125,562 to Bendel; U.S. Patent 5,398,867 to Murphy; U.S. Patent 5,553,774 to Goodno, assigned to Moore Business Forms, Inc. of Grand Island, NY; and U.S. Patent 5,640,835 to Muscoplat.

These are specific shortcomings of these exponents of the known art:

- 1) No system addresses both, continuous and non continuous feeding printing needs,
- 2) Some of these systems require the forming of enclosure and envelope separately, utilizing thereby additional materials and assembly time, also increasing the postage cost due to its higher weight,
- 3) Some of these systems require double sided printing of the piece, increasing the costs and also increasing the risk of mismatch due to human error,
- 4) Some of these systems require a complex industrial set-up, limiting thereby the options of the end user, and preventing the on-location final output by end user,
- 5) Some of these systems use unprotected and exposed coatings of adhesive, during the preparation, printing and forming of the piece, compromising thereby the effectiveness of the adhesive, the appearance of the finished piece, the privacy of the message, and the good flow of the overall project,
- 6) Some of these systems require adhesive coatings to be moistened to promote adhesion, and some require the production, mounting and then the peeling of a liner to expose adhesive, incurring thereby in additional steps and costs.

Also, related to these self contained forms, the USPS (United States Postal Service) sells non-continuous forms that don't require an envelope for mailing.

One version is sold under the name "Aerogramme", which appears to be intended mainly for letters and similar correspondence.

Another version is sold under the name "Bright Eyes Stamps", (product # 9840020) made of a card stock and, with decorative imprinting on it, which appears to be intended for greetings and similar correspondence.

Both products require layers of dry adhesive to be moistened for sealing of the form, which constitutes its first disadvantage.

Another significant disadvantage resulting from this system is the inability to feed the form

through any sheet fed printer and especially a desktop printer for personalized imprinting.

And yet another disadvantage is the need to enter the addressing information on the outside of the form, as an additional step.

There is also a self seal mailer in the marketplace by Avery Dennison Corp. of Pasadena, CA, (**Product # 8325**) bearing a patent pending notice, which is an 8 ½ x 11" rectangular sheet with two score lines, dividing the rectangle in three panels, and having a narrow extension of about 5/8" (For a total length of 11 5/8") that carries a layer of pressure sensitive adhesive and which needs to be protected by a removable strip carrying a release substance.

This self seal mailer has the following disadvantages:

- 1) It is necessary to separately produce and then affix this strip liner, which represents additional manufacturing costs that obviously translate into a higher retail price.
- 2) It is necessary to remove and then discard this strip liner to seal the mailer.
- 3) It is necessary to install and use customizing software prior to printing of the form via a computer, due to the extension that causes the form to have a non standard size, as those pre-formatted by most word processing, desktop publishing, accounting and other computer programs.
- 4) The additional costs associated with this software.
- 5) The need to print separately the message and the addressing information.
- 6) Due to its open side panels, the contents of the message can be easily seen by anyone with just a minimal effort. Hence, the mailer can not be used when privacy and confidentiality are desirable.
- 7) This product is only suitable for non-continuous printers.

Also, at a very massive level, there are some mailing systems that provide a message and means to reply, for the recipient to fill-out an enclosed form, in certain cases or a detachable form in other cases. They appear more expensive and complicated than the "two-way" self sealing mailers of the present invention.

One of the most common systems of the prior art requires the use of multiple layers of paper treated with carbon on its back, which suggests a high cost of production, and in the second aspect (the reply piece), the recipient must either peel off and discard a release bearing strip or moisten a dry adhesive coating.

## SUMMARY OF THE INVENTION

In accordance with the present invention, a self sealing form that is suitable for feeding into any type of printer is obtained from a sheet material and comprises a body, one or more flaps, one or more layers of an adhesive substance and one or more layers of a release substance, that are arranged so when the flap(s) are bent towards the body, the adhesive substance layer(s) face the release substance layer(s), preventing a permanent connection, and the positioning of another section of the sheet material between the adhesive and release substance layer(s) permit the sealing of the form.

The following are objects and advantages of this invention:

- a) to provide a form that can wrap itself;
- b) to provide a form that can as a result obviate the need of an envelope;
- c) to provide a form that can as a result obviate the need to insert a message bearing piece into an envelope;
- d) to provide a system that permits the practical and economical production of self contained forms, such as letters, accounting and legal correspondence, advertising messages, etc. for the personalized printing of both, a private message and the address and return information as well as any other information, with one single printing command, and one single trip of said form across the printer;
- e) to provide a form that as a result can save paper, thanks to its form plus envelope dual function;
- f) to provide a form that can be customized to suit continuous and non continuous feeding systems, making possible its use with virtually any industrial, commercial and personal printers, and the handling of long runs, short runs or individual printing assignments;
- g) to provide a form that can increase the efficiency of personalized printing by including additional areas that can become separate personalized documents as cards, stubs, etc., after they are detached, which in combination with an enclosure, as a return envelope, for example, can maximize the results of a personalized mailing project;
- h) to provide a form which can further provide nesting capabilities that enable the insertion of enclosures;
- i) to provide a form that can satisfy a diversity of personalized mailing specifications, by

working in conjunction with software customized to said specifications, creating additionally other marketing opportunities;

j) to provide a form which can be readily sealed, and which does not require moistening of dry adhesive layers;

k) to provide a form which can be readily sealed, and which does not require the production, affixing and subsequent removal of a release liner to protect adhesive coatings;

l) to provide a form which can be readily sealed, and which does not require the use of adhesive tapes, staples or any other fastening means;

m) to provide a form that can offer absolute privacy and confidentiality, by requiring the absolute and deliberate opening of it to expose its message;

n) to provide a form that offers flexibility for full compliance with private and public mailing/courier system requirements;

o) to provide a self sealing form which can further include attached thereto another self sealing form that may serve as a reply piece;

p) to provide a self sealing form that can discretionarily be processed by hand.

## **REFERENCE NUMERALS**

**202** fastener layer

**204** optional and alternative lower strength fastener layer

**206** fastener inhibitor layer

## BRIEF DESCRIPTION OF THE DRAWINGS

**FIG. 1:** is a plan view of layers of adhesive, lower strength adhesive and adhesive inhibitor, as respective examples of a fastener, a lower strength fastener and a fastener inhibitor.

**FIG. 2A:** is a perspective view of a pattern arrangement of layers on two opposite planes.

**FIG. 2B:** is a perspective view of the pattern arrangement of **FIG. 2A** now having another plane between them.

**FIG. 3A:** is a perspective view of a pattern arrangement of layers on two opposite planes.

**FIG. 3B:** is a perspective view of the pattern arrangement of **FIG. 3A** now having another plane between them.

**FIG. 4A:** is a perspective view of a pattern arrangement of layers on two opposite planes.

**FIG. 4B:** is a perspective view of the pattern arrangement of **FIG. 4A** now having another plane between them.

**FIG. 5A:** is a perspective view of a pattern arrangement of layers on two opposite planes.

**FIG. 5B:** is a perspective view of the pattern arrangement of **FIG. 5A** now having another plane between them.

**FIG. 6A:** is a perspective view of a pattern arrangement of layers on two opposite planes.

**FIG. 6B:** is a perspective view of the pattern arrangement of **FIG. 6A** now having another plane between them.

**FIG. 7A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 7B:** is a plan view of the form of **FIG. 7A**, having the flaps bent.

**FIG. 7C:** is a plan view of the form of **FIG. 7B**, after printing occurred.

**FIG. 7D:** is a plan view of the form of **FIG. 7C**, having the flaps unbent.

**FIG. 7E:** is a perspective view of the form of **FIG. 7D**, being fanfolded.

**FIG. 7F:** is a plan view of the form of **FIG. 7E**, fully folded and sealed.

**FIG. 8:** is a plan view of a self sealing form, having pre-printed indicia.

**FIG. 9A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 9B:** is a plan view of the form of **FIG. 9A**, having the flaps bent.

**FIG. 9C:** is a plan view of the form of **FIG. 9B**, after printing occurred.

**FIG. 9D:** is a plan view of the form of **FIG. 9C**, having the flaps unbent.

**FIG. 9E:** is a perspective view of the form of **FIG. 9D**, being fanfolded.

**FIG. 9F:** is a plan view of the form of **FIG. 9E**, fully folded and sealed.

**FIG. 10A:** is a plan view of a form, illustrating the layers used.

**FIG. 10B:** is a plan view of the form of FIG. 10A, having the flaps bent.

**FIG. 10C:** is a plan view of the form of FIG. 10B, after printing occurred.

**FIG. 10D:** is a plan view of the form of FIG. 10C, having the flaps unbent.

**FIG. 10E:** is a perspective view of the form of FIG. 10D, being folded.

**FIG. 10F:** is a plan view of the form of FIG. 10E, fully folded and sealed.

**FIG. 11:** is a plan view of a self sealing form, after printing occurred, and having the flaps unbent.

**FIG. 12A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 12B:** is a plan view of the form of FIG. 12A, having the flaps bent.

**FIG. 12C:** is a plan view of the form of FIG. 12B, after printing occurred.

**FIG. 12D:** is a plan view of the form of FIG. 12C, having the flaps unbent.

**FIG. 12E:** is a perspective view of the form of FIG. 12D, being fanfolded.

**FIG. 12F:** is a plan view of the form of FIG. 12E, fully folded and sealed.

**FIG. 13:** is a plan view of a self sealing form, after printing occurred, having the flaps unbent.

**FIG. 14A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 14B:** is a plan view of the form of FIG. 14A, having the flaps bent.

**FIG. 14C:** is a perspective view of the form of FIG. 14B, after printing occurred, being fanfolded.

**FIG. 14D:** is a plan frontal view of the form of FIG. 14C, fully folded and sealed.

**FIG. 14E:** is a plan rear view of the form of FIG. 14D.

**FIG. 15A:** is a partial plan view of a web of self sealing forms, illustrating the layers used.

**FIG. 15B:** is a perspective view of the web of FIG. 15A, illustrating a sequence of forms in assembled and folded condition.

**FIG. 16:** is a partial plan view of a web of self sealing forms, having preprinted indicia.

**FIG. 17A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 17B:** is a plan view of the form of FIG. 17A, having the flaps bent and after printing occurred.

**FIG. 17C:** is a perspective view of the form of FIG. 17B, being folded.

**FIG. 17D:** is a perspective view of the form of FIG. 17C, in a later stage of its folding.

**FIG. 17E:** is a plan rear view of the form of FIG. 17D.

**FIG. 17E:** is a plan front view of the form of FIG. 17E.

**FIG. 18:** is a partial plan view of a web of self sealing forms, illustrating the layers used.

**FIG. 19A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 19B:** is a plan view of the form of **FIG. 19A**, having the flap bent, and after printing occurred.

**FIG. 19C:** is a perspective rear view of the form of **FIG. 19C**, being folded.

**FIG. 19D:** is a front plan view of the form of **FIG. 19C** fully folded and sealed.

**FIG. 20A:** is a plan partial view of a web of forms, illustrating the layers used.

**FIG. 20B:** is a plan partial view of the web of forms of **FIG. 20A**, having its flap bent, and after printing occurred.

**FIG. 20C:** is a plan view of a form detached from the web of **FIG. 20B**.

**FIG. 20D:** is a perspective view of the form of **FIG. 20C**, being folded.

**FIG. 20E:** is a plan view of the form of **FIG. 20D** folded and sealed.

**FIG. 21:** is a plan partial view of a web of forms, further illustrating traction holes.

**FIG. 22A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 22B:** is a plan view of the form of **FIG. 22A**, having its flap bent, and after printing has occurred.

**FIG. 22C:** is a perspective view of the form of **FIG. 22B**, being folded.

**FIG. 22D:** is a plan view of the form of **FIG. 22C**, folded and sealed.

**FIG. 23A:** is a plan view of a self sealing form, illustrating the layers used.

**FIG. 23B:** is a plan view of the form of **FIG. 23A**, having its flap bent, and after printing has occurred.

**FIG. 23C:** is a perspective view of the form of **FIG. 23B**, being folded.

**FIG. 23D:** is a plan view of the form of **FIG. 23C**, folded and sealed.

**FIG. 24A:** is a plan view of a dual self sealing form, containing a response self sealing form section, and illustrating the layers used.

**FIG. 24B:** is a plan view of the dual form of **FIG. 24A**, having the flaps bent, and after printing has occurred.

**FIG. 24C:** is a plan view of the dual form of **FIG. 24B**, having its flaps unbent.

**FIG. 24D:** is a perspective view of the dual form of **FIG. 24C**, being fanfolded.

**FIG. 24E:** is a plan view of the dual form of **FIG. 24D** fully folded and sealed.

**FIG. 24F:** is a perspective view of the first step of opening the dual form of **FIG. 24E**.

**FIG. 24G:** is a perspective view of the second step of opening the dual form of **FIG. 24F**.



**FIG. 24H:** is a plan view of the dual form of **FIG. 24G**, opened and unfolded.

**FIG. 24I:** is a perspective view of the dual form of **FIG. 24H**, illustrating the detachment of the reply section.

**FIG. 24J:** is a plan view of the reply section of **FIG. 24I**.

**FIG. 24K:** is a plan view of the reply section of **FIG. 24J**, having the flaps unbent.

**FIG. 24L:** is a perspective view of the reply section of **FIG. 24K**, being folded.

**FIG. 24M:** is a plan front view of the reply section of **FIG. 24L**, fully folded and sealed.

**FIG. 24N:** is a plan rear view of the reply section of **FIG. 24M**, fully folded and sealed.

**FIG. 25A:** is a plan view of a dual self sealing form, containing a response self sealing form section, and illustrating the layers used.

**FIG. 25B:** is a plan view of the dual form of **FIG. 25A**, having the flaps bent.

**FIG. 25C:** is a plan view of the dual form of **FIG. 25B**, after printing has occurred.

**FIG. 25D:** is a plan view of the dual form of **FIG. 25C**, having its flaps unbent.

**FIG. 25E:** is a perspective view of the dual form of **FIG. 25D**, being fanfolded.

**FIG. 25F:** is a perspective view of the dual form of **FIG. 25E**, in a later stage of fanfolding.

**FIG. 25G:** is a plan view of the dual form of **FIG. 25D** fully folded and sealed.

**FIG. 25H:** is a plan view of the dual form of **FIG. 25G**, opened and unfolded.

**FIG. 25I:** is a perspective view of the dual form of **FIG. 25H**, illustrating the first step to produce the reply section.

**FIG. 25J:** is a perspective view of the dual form of **FIG. 25I**, illustrating the second step to produce the reply section.

**FIG. 25K:** is a plan view of the reply section of **FIG. 25J**.

**FIG. 25L:** is a plan view of the reply section of **FIG. 25K**, having the flaps unbent.

**FIG. 25M:** is a perspective view of the reply section of **FIG. 25L**, being folded.

**FIG. 25N:** is a plan front view of the reply section of **FIG. 25M**, fully folded and sealed.

**FIG. 25O:** is a plan rear view of the reply section of **FIG. 25N**, fully folded and sealed.

## DETAILED DESCRIPTION OF THE DRAWINGS

**FIGS. 1 through 6B** are submitted in abstract form since they apply to all embodiments and combination of embodiments of this invention. These figures illustrate the different layers and different pattern arrangements of the layers that can be implemented to achieve the different fastening effects that enable the production of the multiple embodiments of this invention.

It is to be clearly understood that these pattern arrangements merely represent some examples. Different needs may require different patterns, and accordingly, a specific pattern or combinations of patterns will result obvious within the scope of this invention.

As stated before, it is an express and explicit aspect of this application that all the pattern arrangements of **FIGS. 2A through 6B** and any combination thereof apply to all embodiments of this application, and this is the purpose of their discussion in this specification.

**REFERRING TO FIG. 1:** It shows in plan view a fastener layer **202**, which as an example could be a pressure sensitive adhesive; a lower strength fastener layer **204**, which as an example could be a low tack pressure sensitive adhesive; and a fastener inhibitor layer **206**, which as an example could be a release substance.

Properties of fastener layers **202** and fastener inhibitor layers **206** may vary to suit different purposes, including the purpose of removably connecting a fastener layer **202** to a fastener inhibitor layer **206**.

**REFERRING TO FIG 2A:** It shows in perspective view a singular fastener layer **202** on plane **201**, facing a singular fastener inhibitor layer **206** on plane **203**. In this and subsequent references, planes **201** and **203** represent a face or surface.

**REFERRING TO FIG 2B:** It shows in perspective view the layers of FIG. 2A, now having a two sided plane **205** free of any layers positioned between planes **201** and **203**, that will connect to fastener layer **202** when in contact with it.

**REFERRING TO FIG. 3A:** It shows in perspective view a fastener layer **202** alternated with a fastener inhibitor layer **206** on plane **201**, facing another fastener layer **202** alternated with a fastener inhibitor layer **206** on plane **203**, arranged so the fastener layer of one plane face the fastener inhibitor layer of the other plane and vice versa.

**REFERRING TO FIG 3B:** It shows in perspective view the layers of FIG. 3A, now having a two sided plane **205** free of any layers between planes **201** and **203**, that will connect to fastener layers **202** when in contact with them.

**REFERRING TO FIG. 4A:** It shows in perspective view a sequence of fastener layers **202** alternated with fastener inhibitor layers **206** on plane **201**, facing another sequence of fastener layers **202** alternated with fastener inhibitor layers **206** on plane **203**, arranged so

the fastener layers of one plane face the fastener inhibitor layers of the other plane and vice versa.

**REFERRING TO FIG 4B:** It shows in perspective view the layers of FIG. 3A, now having a two sided plane 205 free of any layers positioned between planes 201 and 203, that will connect to fastener layers 202 when in contact with them.

**REFERRING TO FIG. 5A:** It shows in perspective view a sequence of fastener layers 202, alternated with fastener inhibitor layers 206, lower strength fastener layers 204, and a blank space (area with no layer) on plane 201 facing another sequence of fastener layers 202, alternated with fastener inhibitor layers 206, lower strength fastener layers 204 and blank spaces (areas with no layers) on plane 203, arranged so the fastener layers of one plane face the fastener inhibitor layers of the other and vice versa and the lower strength fastener layers of one plane face the blank space(s) of the other and vice versa. A temporary fastening is allowed by the contact of the lower strength fastener layers 204 with the blank spaces.

**REFERRING TO FIG 5B:** It shows in perspective view the layers of FIG. 5A, now having a two sided plane 205 free of any layers positioned between planes 201 and 203, that will connect to fastener layers 202 when in contact with them.

**REFERRING TO FIG. 6A:** It shows in perspective view a lower strength fastener layer 204 on plane 201; facing plane 203, with no layer.

**REFERRING TO FIG 6B:** It shows in perspective view the lower strength fastener layer 204 on plane 201 and no layer on plane 203, and having between them a two sided plane 205 that will temporarily connect to the lower strength fastener layer 204, when in contact with it.

The preceding figures are only some illustrative examples. The layers described can have any form, as for instance, curvilinear, zig-zag, etc. and a combination of any forms. Can be related to any geometrical shape, as for instance, rectangle, triangle, polygon, circle, ellipse, etc, and any combination thereof. Likewise, the layers may be in the periphery of such geometrical shape, and/or the entire area of said geometrical shape.

It is further explicitly disclosed as an aspect of this specification that the pattern arrangements illustrated by these figures and corresponding text apply to all the embodiments of this invention.

**EMBODIMENT EXAMPLES:** It is to be understood that the described and illustrated embodiments merely represent some examples. After applying the principles described, and in combination with the multiple pattern arrangements of layers possible, illustrated with examples of preceding FIGS. 2A-6B, and any combination thereof, other embodiments and combination of embodiments will result obvious within the scope of this

invention. Also, the position of the adhesive layers and adhesive inhibitor layers may be in inverse order in all embodiments. Attributes of adhesive and adhesive inhibitor (e.g. release) substances may vary to suit different fastening needs, as for instance: the need to temporarily connect a coating of adhesive to a coating of adhesive inhibitor.

Closely related embodiment figures have the same number but different alphabetic suffixes.

The terms used in the description of embodiments are intended to be exemplifying, and by no means to be restrictively construed, as obvious equivalents may be applied and substitutions may take place within the scope of the invention.

For instance: "score" or "score lines" are illustrative examples of any means of weakening a sheet material for subsequent folding; "die cut" is an illustrative example of cutting a sheet material into a shape or to remove a shape out of a sheet material; "perforation lines" is an illustrative example of any means of weakening a sheet material for subsequent detachment of a portion thereof. Score or folding lines may also be substituted by printed guides, or may simply be omitted.

Also, a fastener is exemplified by an adhesive and a fastener inhibitor is exemplified by an adhesive inhibitor (e.g. a release substance)

"Sheet material" is any flexible flat material, and includes but is not limited to: paper, cardboard, film, acetate, and the like. A particular mention is made of a product known in the market as "Tyvek <sup>™</sup>" by Dupont Corp. of Wilmington, DE; and of another product being commercialized in conventional paper sizes by Xerox Corp. of Rochester, NY, under the commercial name "Never Tear Paper <sup>™</sup>" that may be used whenever suitable or desirable"

Indicia shown in all embodiments is only for purposes of illustration. It is to be understood that any type of indicia may be inscribed on the forms, within the scope of the invention.

Also, whether it is shown or not, all embodiments may incorporate **a)** detachment means (e.g. perforation lines) to enable the instant production of separate pieces; **b)** openings that enable the creation of windows, that may have or may not have a translucent cover; **c)** traction holes, to enable the feeding of the forms through traction printers; and any other features established in the industry.

**1st EMBODIMENT EXAMPLE:** FIG. 7A through FIG. 7F inclusive illustrate in a progressive manner the application of this invention to build a three panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 7A:** A previously die or otherwise cut sheet 207 has score lines 208,

210 and 212 separating the body 214 from flaps 216, 218 and 220, respectively. Adhesive layers 202, are applied to the flaps. An adhesive inhibitor layer 206 is applied to the body. Score lines 222 and 224 are applied to the body.

**REFERRING TO FIG. 7B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer.

**REFERRING TO FIG. 7C:** Form is printed so a private message is on first two panels, while addressing information is printed on third panel.

**REFERRING TO FIG. 7D:** Flaps are unfolded.

**REFERRING TO FIG. 7E:** Body is being folded in its final pattern, so private message is covered and addressing information is readily visible.

**REFERRING TO FIG. 7F:** Flaps are bent attaching to third panel, to seal the form.

An alternate embodiment is illustrated with FIG. 8, where the form has pre-printed a blank check indicia, has perforation lines 226 and 228, for the subsequent detachment of the check and other sections, after personalized imprinting takes place.

Another alternate three panel self contained form (not shown) of this 1st and any subsequent embodiment is obtained by omitting the adhesive inhibitor layer 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**2nd EMBODIMENT EXAMPLE:** FIG. 9A through FIG. 9F inclusive illustrate in a progressive manner the application of this invention to build a three panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 9A:** A previously die or otherwise cut sheet 207 has score lines 208, 210 and 212 separating the body 214 from flaps 216, 218 and 220, respectively. Adhesive layers 202, are applied to the flaps. An adhesive inhibitor layer 206 is applied to the body. Score lines 222 and 224 are applied to the body.

**REFERRING TO FIG. 9B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer.

**REFERRING TO FIG. 9C:** Form is printed so a private message is on first two panels, while addressing information is printed on third panel.

**REFERRING TO FIG. 9D:** Flaps are unfolded.

**REFERRING TO FIG. 9E:** Body is being folded in its final pattern, so private message is covered and addressing information is readily visible.

**REFERRING TO FIG. 9F:** Flaps are bent attaching to third panel, to seal the form.

**3rd EMBODIMENT EXAMPLE: FIG. 10A through FIG. 10F inclusive** illustrate in a progressive manner the application of this invention to build a two panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 10A:** A previously die or otherwise cut sheet **207** has score lines **208**, **210** and **212** separating the body **214** from flaps **216**, **218** and **220** respectively. Adhesive layers **202**, are applied to the flaps. An adhesive inhibitor layer **206** is applied to the body. Score line **222** is applied to the body. Windows **230** and **232** were obtained from original cut.

**REFERRING TO FIG. 10B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer.

**REFERRING TO FIG. 10C:** Form is printed so addressing information appears on top, followed by a private message.

**REFERRING TO FIG. 10D:** Flaps are unfolded.

**REFERRING TO FIG. 10E:** Body is being folded, so addressing information will appear through the windows.

**REFERRING TO FIG. 10F:** Flaps are bent to seal the form.

An alternate embodiment is illustrated with **FIG. 11**, where the form is used to produce a personalized official message.

Another alternate three panel self contained form (not shown) of this 3rd embodiment is obtained by omitting the adhesive inhibitor layer **206** and using a dry adhesive substance as the adhesive layers **202**, that is activated by its moistening. For the temporary connection of the flaps to the body, a low tack adhesive **204** is used, interacting with a facing space that has no layer of any substance.

**4th EMBODIMENT EXAMPLE: FIG. 12A through FIG. 12F inclusive** illustrate in a progressive manner the application of this invention to build a two panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 12A:** A previously die or otherwise cut sheet **207** has score lines **208**, **210** and **212** separating the body **214** from flaps **216**, **218** and **220** respectively. Adhesive

layers 202, are applied to the flaps. An adhesive inhibitor layer 206 is applied to the body. Score line 222 is applied to the body.

**REFERRING TO FIG. 12B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer.

**REFERRING TO FIG. 12C:** Form is printed so addressing information appears on the top flap, and the private message appears on the body.

**REFERRING TO FIG. 12D:** Flaps are unfolded.

**REFERRING TO FIG. 12E:** Body is being folded.

**REFERRING TO FIG. 12F:** Flaps are bent to seal the form.

Another alternate embodiment is illustrated with **FIG. 13**, where the form is used to produce a personalized tax form, having perforation lines 226, 227 and 228 to produce detachable sections.

Another alternate three panel self contained form (not shown) of this 4th embodiment is obtained by omitting the adhesive inhibitor layer 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**5th EMBODIMENT EXAMPLE:** **FIG. 14A** through **FIG. 14E** inclusive illustrate in a progressive manner the application of this invention to build a four panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 14A:** A previously die or otherwise cut sheet 207 has score lines 208 and 210 separating the body 214 from flaps 216, and 218 respectively. Adhesive layers 202, are applied to the flaps. Adhesive inhibitor layers 206 are applied to the body. Score lines 222, 223 and 224 are applied to the body. Windows 230 and 232 were obtained from original cut.

**REFERRING TO FIG. 14B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed and addressing information appears on top, followed by a private message.

**REFERRING TO FIG. 14C:** Flaps are unbent. Body is being fan-folded, so addressing information will appear through the windows.

**REFERRING TO FIG. 14D:** Flaps are bent to seal the form. (front view)

**REFERRING TO FIG. 14E:** sealed form is shown in rear view.

An alternate four panel self contained form (not shown) of this 5th embodiment is obtained by omitting the adhesive inhibitor layers 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**6th EMBODIMENT EXAMPLE: FIG. 15A and FIG. 15B** illustrate a variation of the fifth embodiment example, to produce a continuous form, suitable for web presses and any other friction continuous printers.

**REFERRING TO FIG. 15A:** A web of a sheet material 209 having detachment lines 234 and 236, defining the limits of an individual form 207 having all the parts of form of FIG. 13A.

**REFERRING TO FIG. 15B:** An assembly of forms is shown.

A variation of this form is obtained by adding traction holes 211 to the web 209, as shown in FIG. 16.

**7th EMBODIMENT EXAMPLE: FIG. 17A through FIG. 17F** inclusive illustrate in a progressive manner the application of this invention to build a four panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 17A:** A previously die or otherwise cut sheet 207 has score lines 208 and 210 separating the body 214 from flaps 216, and 218 respectively. Adhesive layers 202, are applied to the flaps. Adhesive inhibitor layers 206 are applied to the body. Score lines 222, 223 and 224 are applied to the body. Windows 230 and 232 were obtained on second panel from original cut.

**REFERRING TO FIG. 17B:** Flaps are bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed and addressing information appears on first panel. Private message is on third and four panel.

**REFERRING TO FIG. 17C:** Flaps are unbent. Body is being folded, so addressing information will appear through the windows.

**REFERRING TO FIG. 17D:** A later stage of fan folding is shown.

**REFERRING TO FIG. 17E:** Flaps are bent to seal the form (rear view.)

**REFERRING TO FIG. 17F:** Flaps are bent to seal the form (front view.)

An alternate four panel self contained form (not shown) of this 7th embodiment is obtained



by omitting the adhesive inhibitor layers 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**8th EMBODIMENT EXAMPLE:** FIG. 18 is a web of a sheet material 209 having detachment lines 234 and 236, defining the limits of an individual form 207 having all the parts of form of FIG. 16A. With traction holes 211, the forms are suitable for feeding into a traction printer. With, or without the traction holes, the form is suitable for feeding into a friction printer.

In certain instances, as in the following 9th, 10th, 11th and 12th embodiment examples, privacy is not a critical aspect in a mailing project. Yet, it is desirable that the pieces have a certain size and or shape, for better handling and to conform to postal guidelines or regulations.

Thus, these embodiment examples describe a form that while offering limited privacy, obviates the need of an envelope; and can be readily sealed after entering indicia, in accordance to postal and courier established practices. The form also makes unnecessary the use of removable release strips and the use of dry adhesive coatings that need to be moistened for sealing.

Further customized advantages may be obtained by the use of "windows", perforations that enable the instant production of detachable pieces, etc.

**9th EMBODIMENT EXAMPLE:** FIG. 19A thorough FIG. 19D inclusive illustrate in a progressive manner the application of this invention to build a two panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 19A:** A sheet 207 has score line 208 separating the body 214 from flap 216. An adhesive layer 202, is applied to the flap. An adhesive inhibitor layer 206 is applied to the body. Score line 222 is applied to the body.

**REFERRING TO FIG. 19B:** Flap is bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed.

**REFERRING TO FIG. 19C:** Flap was unbent. Body is being folded. (Back view)

**REFERRING TO FIG. 19D:** (Front view) Form is sealed.

An alternate two panel self contained form (not shown) of this 9th embodiment is obtained by omitting the adhesive inhibitor layers 206 and using a dry adhesive substance as the

adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**10th EMBODIMENT EXAMPLE: FIG. 20A** thorough **FIG. 20E** inclusive illustrate in a progressive manner the application of this invention to build a two panel self sealing form, for feeding into continuous printers.

**REFERRING TO FIG. 20A:** A web 209 has detachment lines 234 and 236, that define individual form 207. Score line 208 separates the body 214 from flap 216. An adhesive layer 202, is applied to the flap. An adhesive inhibitor layer 206 is applied to the body. Score/perforation line 222 is applied to the body. Perforated (detachment) lines 213 are applied.

**REFERRING TO FIG. 20B:** Flap is bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed.

**REFERRING TO FIG. 20C:** Individual form was detached from web.

**REFERRING TO FIG. 20D:** Flap was unbent. Form is being folded for sealing.

**REFERRING TO FIG. 20E:** Form is sealed.

An alternate two panel self contained form (not shown) of this 10th embodiment is obtained by omitting the adhesive inhibitor layers 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

A variation of the 10th embodiment mailer, with all its parts and ramifications, is illustrated by **FIG. 21** further incorporating holes 211 for use with a tractor printer.

**11th EMBODIMENT EXAMPLE: FIG. 22A** thorough **FIG. 22D** inclusive illustrate in a progressive manner the application of this invention to build a three panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 22A:** A sheet 207 has score line 208 separating the body 214 from flap 216. An adhesive layer 202, is applied to the flap. An adhesive inhibitor layer 206 is applied to the body. Score lines 222 and 224 are applied to the body.

**REFERRING TO FIG. 22B:** Flap is bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed.

**REFERRING TO FIG. 22C:** Flap was unbent. Body is being folded.

**REFERRING TO FIG. 22D:** (Back view) Form is sealed.

An alternate three panel self contained form (not shown) of this 11th embodiment is obtained by omitting the adhesive inhibitor layers 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

**12th EMBODIMENT EXAMPLE: FIG. 23A** thorough **FIG. 23D** inclusive illustrate in a progressive manner the application of this invention to build a three panel self sealing form, for feeding into laser printers and other non continuous printers.

**REFERRING TO FIG. 23A:** A sheet 207 has score line 208 separating the body 214 from flap 216. An adhesive layer 202, is applied to the flap. An adhesive inhibitor layer 206 is applied to the body. Score lines 222 and 224 are applied to the body. Window 230 was cut out.

**REFERRING TO FIG. 23B:** Flap is bent towards the body, connecting temporarily to it, enabling the form to be fed through a printer. Form was printed.

**REFERRING TO FIG. 23C:** Flap was unbent. Body is being folded.

**REFERRING TO FIG. 23D:** Form is sealed. Addressing information appears thorough the window.

An alternate three panel self contained form (not shown) of this 12th embodiment is obtained by omitting the adhesive-inhibitor layers 206 and using a dry adhesive substance as the adhesive layers 202, that is activated by its moistening, prior to permanently sealing the form. For the temporary connection of the flaps to the body, a low tack adhesive 204 is used, interacting with a facing space that has no layer of any substance.

## **OTHER EMBODIMENTS**

There are mailing assignments that require a reply from the recipient of the piece. In these cases, it may be desirable to include means for instant reply, so this convenience maximizes the effectiveness of the assignment. A reply card, which may be detached from the original piece may suffice in certain cases. In others where privacy is desirable, this card is not viable.

A solution is provided by the following 13th and 14th embodiment examples, which disclose "two-way" self sealing mailers, built out of one blank of a sheet material, and

readily sealable, obviating the use of two envelopes. In other words, a mailer is sent to the recipient, who opens it, detaches a portion of it, fills it out, seals it as another mailer and sends it back to original remittent.

**13th EMBODIMENT EXAMPLE: FIG. 24A** thorough **FIG. 24N** inclusive illustrate in a progressive manner the application of this invention to build a two-way self sealing mailer.

**REFERRING TO FIG. 24A:** A sheet material **207** has a first mailer **238** with main flaps **216**, **218** and **220**, and adhesive layers **202** and a release layer **206**. First mailer is separated from second mailer **244** by detachment line **234**. Second mailer **244** has flaps **246**, **248** and **250**; and adhesive layers **202** and release layers **206**. Inner score lines **252** and **254** are applied. Outer score lines **256** and **258** are applied. Perforation lines **260** and **262** are applied across entire two-way mailer.

**REFERRING TO FIG. 24B:** All flaps were bent. (Flaps of second mailer **244** were bent about inner score lines.) Adhesive layers connected in a removable fashion to release layers. Two-way mailer was printed, containing a message on the first mailer and a reply form for that message on the second mailer. Addressing information appears on the back side of flap **216**.

**REFERRING TO FIG. 24C:** Flaps of first mailer are unfolded.

**REFERRING TO FIG. 24D:** Mailer is being fan-folded for sealing.

**REFERRING TO FIG. 24E:** Mailer is sealed.

**REFERRING TO FIG. 24F:** Tearing along perforated lines of one side, as the first step of opening the mailer.

**REFERRING TO FIG. 24G:** Tearing along perforated lines of the other side, as the second step of opening the mailer.

**REFERRING TO FIG. 24H:** Mailer has been opened and unfolded by the recipient.

**REFERRING TO FIG. 24I:** Second (reply) mailer is produced by removing remnant of first mailer.

**REFERRING TO FIG. 24J:** Second mailer is fully detached.

**REFERRING TO FIG. 24K:** Side flaps are unbent. Reply form (second mailer) is filled out.

**REFERRING TO FIG. 24L:** Reply form is being folded for sealing.

**REFERRING TO FIG. 24M:** Flaps are folded by outer score lines. Response is sealed. (front view) Pre-printed indicia is shown.

**REFERRING TO FIG. 24N:** Response is sealed (rear view.)

**14th EMBODIMENT EXAMPLE: FIG. 25A** thorough **FIG. 25O** inclusive illustrate in a progressive manner the application of this invention to build another two-way self sealing mailer.

**REFERRING TO FIG. 25A:** A die-cut sheet 207 has a message panel 264, with flaps 216, 218 and 220, and adhesive layers 202 and release layer 206; a reply mailer 244, whose limits are defined by detachment lines 234 and 236, and with flaps 246 and 248; and adhesive layers 202 and release layers 206; and an addressing panel 266.

**REFERRING TO FIG. 25B:** All flaps are now bent. Mailer is now in condition for feeding into a printer.

**REFERRING TO FIG. 24C:** A message, along with a response form for the message and addressing information has been printed.

**REFERRING TO FIG. 25D:** Flaps 216, 218 and 220 of message panel 264 are unbent.

**REFERRING TO FIG. 25E:** Mailer is being fan-folded for sealing.

**REFERRING TO FIG. 25F:** A later stage of the fan-folding is shown.

**REFERRING TO FIG. 25G:** Mailer is sealed, and ready for delivery.

**REFERRING TO FIG. 25H:** Mailer has been opened and unfolded by recipient.

**REFERRING TO FIG. 25I:** Message panel 264 is being removed.

**REFERRING TO FIG. 25J:** Addressing panel 266 is being removed.

**REFERRING TO FIG. 25K:** Reply form is obtained.

**REFERRING TO FIG. 25L:** Reply is filled out. Flaps are unfolded.

**REFERRING TO FIG. 25M:** Reply form is being folded for sealing.

**REFERRING TO FIG. 25N:** Reply is sealed (Front view)

**REFERRING TO FIG. 25O:** Reply is sealed. Pre printed indicia is shown (back view.)